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Smell Abnormalities Caused by Sars-Cov2 Infection: A Literary Review

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Abstarct- *Context:* COVID-19 is an infectious disease caused by SARS-CoV-2 that started at the end of 2019, in Wuhan, spreading to multiple countries. This virus can produce symptoms of superior and inferior respiratory infection, cardiac lesions, and death. Among many other symptoms, disturbances in the sense of smell and taste are reported by patients. Even though most viral infections of the upper respiratory tract present anosmia associated with the infection, in the case of the SARS-CoV2 infection, these symptoms can happen in its absence. Because of this, the recovery time for anosmia caused by CoV2 can occur within a few weeks, while typical viral anosmia generally lasts for months.

Goals: Understand the specificities of the olfactory affections caused by SARS-CoV2 infection.

Keywords: *SARS-COV2; anosmia; neurons.*

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Abstract- Context: COVID-19 is an infectious disease caused by SARS-CoV-2 that started at the end of 2019, in Wuhan, spreading to multiple countries. This virus can produce symptoms of superior and inferior respiratory infection, cardiac lesions, and death. Among many other symptoms, disturbances in the sense of smell and taste are reported by patients. Even though most viral infections of the upper respiratory tract present anosmia associated with the infection, in the case of the SARS-CoV2 infection, these symptoms can happen in its absence. Because of this, the recovery time for anosmia caused by CoV2 can occur within a few weeks, while typical viral anosmia generally lasts for months.

Goals: Understand the specificities of the olfactory affections caused by SARS-CoV2 infection.

Activities developed: This article represents a simple revision of the literature published at PUBMED and validated by DECS, combining the terms "COVID-19" and "Smell and Taste dysfunction". Eight articles were found, but only three were used due to similarities to our goals.

Results: The nasal epithelium combines both respiratory and olfactory activity. The neural path is responsible for the olfactory information to be transmitted from the olfactory epithelium to the olfactory bulb, through axons of the sensory neurons that puncture the cribriform lamina of the ethmoid bone. Their circuits process the information before they reach the superior cerebral centers. Immunostaining of the olfactory epithelium revealed the presence of angiotensin 2 transformative enzyme in the sustentacular cells, instead of the olfactory neurons, which are the indirect affection target of the CoV2 infection. The sustentacular cells are responsible for sustaining the sensory neurons and for antigen phagocytosis. The local infection of the sustentacular and vascular cells of the nasal and bulbar epithelium may cause inflammation, which generates a series of events that affect either directly or indirectly, the correct and effective transmission of smell. During those events, a neural transmission blockage can happen, along with the decrease of hydric and ionic balance due to damage to the supporting cells. Besides that, the vascular damage with hypoperfusion of the olfactory bulb can lead to prolonged anosmia. Taking these analyses into account, more studies are still necessary to solidify the research findings to then venture into new hypothesis.

Keywords: SARS-COV2; anosmia; neurons.

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